

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

Please cancel Claim 1.

2. (Currently Amended) The engine control system of claim 4 5 wherein said resonance geometric configurations include a tuned configuration and a detuned configuration.

3. (Currently Amended) The engine control system of claim 4 5 wherein each of said operational categories is based on an said engine load.

4. (Currently Amended) The engine control system of claim 3 further comprising a commanded load input that generates a load command, wherein said controller determines whether an said engine load is one of a said partial load and a said full load based on said load command.

5. (Currently Amended) ~~The engine control system of claim 4~~ An engine control system that controls operation of an internal combustion engine, comprising:
an intake manifold that is adjustable to a plurality of resonance geometric configurations; and

a controller that monitors engine operation, that classifies engine operation in one of a plurality of operational categories and that adjusts said intake manifold to a resonance geometric configuration associated with said operational category wherein said controller adjusts said intake manifold to a first resonance geometric configuration if when an ~~said~~ engine load is ~~said~~ at a partial load and adjusts said intake manifold to a second resonance geometric configuration if when ~~said~~ engine load is ~~said~~ at full load.

6. (Currently Amended) The engine control system of claim 3 5 wherein each of said operational categories is further based on an engine speed.

7. (Original) The engine control system of claim 6 further comprising an engine speed sensor that measures said engine speed, wherein said controller compares said engine speed to a threshold engine speed to determine whether said engine speed is one of a high engine speed and a low engine speed.

8. (Original) The engine control system of claim 7 wherein said threshold engine speed is an engine speed at which a volumetric efficiency of said engine is constant regardless of said resonance geometric configuration.

9. (Original) The engine control system of claim 8 wherein said threshold engine speed is based on engine load.

10. (Currently Amended) The engine control system of claim 7 wherein said controller adjusts said intake manifold to a said first resonance geometric configuration if said engine load is a said partial load and said engine speed is less than said threshold engine speed, adjusts said intake manifold to a said second resonance geometric configuration if said engine load is said partial load and said engine speed is greater than said threshold engine speed, adjusts said intake manifold to said first resonance geometric configuration if said engine load is a said full load and said engine speed is greater than said threshold engine speed and adjusts said intake manifold to said second resonance geometric configuration if said engine load is said full load and said engine speed is less than said threshold engine speed.

11. (Currently Amended) The engine control system of claim 4 5 further comprising:

a tuning valve that is movable between an open position to provide a said first resonance geometric configuration and a closed position to divide said intake manifold into multiple plenums and to provide a said second resonance geometric configuration; and

an actuator that manipulates said tuning valve based on a signal from said controller.

Please cancel Claim 12.

13. (Currently Amended) The method of claim 42 17 wherein said resonance geometric configurations include a tuned configuration and a detuned configuration.

14. (Currently Amended) The method of claim 42 17 wherein each of said operational categories is based on an said engine load.

15. (Original) The method of claim 14 wherein each of said operational categories is further based on an engine speed.

16. (Currently Amended) The method of claim 42 17 wherein said step of adjusting said intake manifold comprises:

moving a tuning valve to an open position to provide a said first resonance geometric configuration; and

moving a tuning valve to a closed position to divide said intake manifold into multiple plenums and to provide a said second resonance geometric configuration.

17. (Currently Amended) ~~The method of claim 42 further comprising:~~ A method for controlling an internal combustion engine having an intake manifold that is adjustable to a plurality of acoustic resonance geometric configurations, comprising:

defining a plurality of operational categories for said engine;

defining a resonance geometric configuration associated with each of said operational categories;

classifying engine operation in an operational category of said operational categories;

adjusting said intake manifold to said resonance geometric configuration defined for said operational category;

determining whether an engine load is one of a partial load and a full load based on a load command;

adjusting said intake manifold to a first resonance geometric configuration if said engine load is said partial load; and

adjusting said intake manifold to a second resonance geometric configuration if said engine load is said full load.

18. (Currently Amended) The method of claim 12 17 further comprising:

~~measuring a load command;~~

~~determining whether an engine load is one of a partial load and a full load based on said load command;~~

measuring an engine speed;

comparing said engine speed to a threshold engine speed;

adjusting said intake manifold to a said first resonance geometric configuration if when said engine load is said partial load and said engine speed is less than said threshold engine speed;

adjusting said intake manifold to a said second resonance geometric configuration if when said engine load is said partial load and said engine speed is greater than said threshold engine speed;

adjusting said intake manifold to said first resonance geometric configuration if when said engine load is said full load and said engine speed is greater than said threshold engine speed; and

adjusting said intake manifold to said second resonance geometric configuration if when said engine load is said full load and said engine speed is less than said threshold engine speed.

19. (Original) The method of claim 18 wherein said threshold engine speed is an engine speed at which a volumetric efficiency of said engine is constant regardless of said resonance geometric configuration.

20. (Original) The method of claim 19 wherein said threshold engine speed is based on engine load.

Please cancel Claim 21.

22. (Currently Amended) The engine control system of claim 24 25 wherein said first and second resonance geometric configurations include a tuned configuration and a detuned configuration.

23. (Currently Amended) The engine control system of claim 24 25 wherein each of said operational categories is based on an said engine load.

24. (Currently Amended) The engine control system of claim 23 wherein said controller determines whether said engine load is one of a said partial load and a said full load based on said load command.

25. (Currently Amended) ~~The engine control system of claim 24~~ An engine control system that controls operation of an internal combustion engine, comprising:

a load input that generates a load command signal;

an intake manifold that is adjustable to a plurality of resonance geometric configurations and that includes:

a tuning valve that is adjustable to provide a first resonance geometric configuration and a second resonance geometric configuration; and

an actuator that manipulates a position of said tuning valve; and

a controller that monitors engine operation, that classifies engine operation in one of a plurality of operational categories based on said load command signal and that signals said actuator to provide one of said first and second resonance geometric configurations wherein said controller adjusts said intake manifold to said first resonance geometric configuration if when an said engine load is said at a partial load and adjusts said intake manifold to said second resonance geometric configuration if when said engine load is said at full load.

26. (Currently Amended) The engine control system of claim 23 ~~25~~ wherein each of said operational categories is further based on an engine speed.

27. (Original) The engine control system of claim 26 further comprising an engine speed sensor that measures said engine speed, wherein said controller compares said engine speed to a threshold engine speed to determine whether said engine speed is one of a high engine speed and a low engine speed.

28. (Original) The engine control system of claim 27 wherein said threshold engine speed is an engine speed at which a volumetric efficiency of said engine is constant regardless of said resonance geometric configuration.

29. (Original) The engine control system of claim 28 wherein said threshold engine speed is based on engine load.

30. (Currently Amended) The engine control system of claim 27 wherein said controller adjusts said intake manifold to said first resonance geometric configuration if said engine load is a said partial load and said engine speed is less than said threshold engine speed, adjusts said intake manifold to said second resonance geometric configuration if said engine load is said partial load and said engine speed is greater than said threshold engine speed, adjusts said intake manifold to said first resonance geometric configuration if said engine load is a said full load and said engine speed is greater than said threshold engine speed and adjusts said intake manifold to said second resonance geometric configuration if said engine load is said full load and said engine speed is less than said threshold engine speed.

31. (Currently Amended) The engine control system of claim ~~24~~ 25 wherein said tuning valve is a discrete position tuning valve that is movable between an open position to provide said first resonance geometric configuration and a closed position to divide said intake manifold into multiple plenums and to provide said second resonance geometric configuration.